

KUZIN, Ye.V., inzh.-podpolkovnik

Guidance systems for antiaircraft rockets (as revealed by foreign  
press data). Vest.protivovozd.obor. no.9:31-33 S '61.

(MIRA 14:8)

(Guided missiles--Guidance systems)

KUZIN, Yu.F.

The VM-613-type vertical milling machine. Biol.tekh.-ekon.inform.  
no.6:21-63 '58. (MIRA 11:8)  
(Milling machines)

ACC NR: AR6035391

(N)

SOURCE CODE: UR/0398/66/000/009/V020/V020

AUTHOR: Kuzin, Z. S.

TITLE: Device for visual readout of data from a navigation digital computer

SOURCE: Ref. zh. Vodnyy transport, Abs. 9V138

REF SOURCE: Sb. Vychisl. tekhn. na morsk. transp. M., Transport, 1966, 101-106

TOPIC TAGS: digital computer, ship navigation, navigation computer, data readout, computer coding

ABSTRACT: A readout device was developed at LVIMU to display the results of the digital-computer solution of a navigational problem. The display should include three 6-digit decimal registers (probable coordinates  $\varphi$  and  $\lambda$  of the ship location, with accuracy to several tenths of a second), and the main elements of the error ellipse, obtained in the form of the projection of the values of the major and minor semi-axes on the meridian and on the parallel. The results of the solution of the problem are fed from the computer in a binary-decimal code, which is then converted into a decimal code and recorded in the corresponding digit of one of the registers. The proposed readout device can be used also for the insertion of the necessary information, since it makes it possible to monitor, in the case of manual input, the correctness of the introduced quantities, which are shown on the visual display before and after being recorded in the memory unit. 2 illustrations. Bibliography, 2 titles. [Translation of abstract]

SUB CODE: 09, 17

Card 1/1

UDC: 629.12.014.002.5-861

GEL'MAN-VINOGRADOV, K.B.; KUZINA, A.A., dot., red.; PIROGOV, A.I.,  
tekhn. red.

[Microfilming documentary materials and the organization of  
work with microfilms in Soviet archives] Mikrofotokopirovanie  
dokumental'nykh materialov i organizatsiia raboty s mikrofoto-  
kopiiami v arkhivakh SSSR. Pod red. A.A.Kuzina. Moskva, M-vo  
vysshego i srednego spetsial'nogo obrazovaniia RSFSR, 1961. 183 p.  
(MIRA 15:3)

(Microphotography)

KUZINA, A. F.

IRML

U 7980

NU

METHODS OF WORK IN APPLYING RADIOACTIVE  
ISOTOPES. V. I. Spitsin, P. N. Koshchigov, M. M.  
Golubina, A. P. Kuritz, and Z. A. Sokolova. Moscow,  
Akademiya Nauk S. S. R., 1953. 227p. (In Russian)  
(Book on display at Geneva Conference)

A manual for workers in research institutions and in industry having to deal with radioactive isotopes. A description of the properties of radioactive isotopes, methods of measuring  $\alpha$ ,  $\beta$ ,  $\gamma$  radiations and rules for work with radioactive isotopes. Practical tasks in the application of radioactive isotopes in chemistry. A brief theoretical summary precedes each task. (publisher's note)

RMF

QW  
④

AUTHORS: Spiisyn, Vikt. I., Kuzina, A. F. SOV/89-5-2-7/36

TITLE: On the Production of Weighable Amounts of  $\text{To}^{99}$  From Molybdenum  
Irradiated With Neutrons (O poluchenii vesomykh kolichestv  $\text{To}^{99}$   
iz obluchennogo neytronami molibdena)

PERIODICAL: Atomnaya energiya, 1958, Vol. 5, Nr 2, pp. 141-146 (USSR)

ABSTRACT:  $\text{MoO}_3$ , which was irradiated in a research reactor for 70 days by  
a neutron flow of  $2,5 \cdot 10^{13} \text{ n/cm}^2\text{.sec}$ , served as initial material  
for the production of technetium. The irradiated preparation was  
stored for 1 - 3 years so that the activities produced at the  
same time died down completely.  
Separation took place with  $\text{MgHPO}_4 \cdot 3\text{H}_2\text{O}$  and  $\text{MgNH}_4\text{PO}_4 \cdot 0,5 \text{ H}_2\text{O}$ .  
The separation is based upon the co-precipitation of technetium  
with difficultly soluble phosphates. After precipitation the  
precipitant was chromatographically purified. By the method  
elaborated and tested by laboratory experiments it was possible  
to separate milligrams of technetium. 200 g of  $\text{MoO}_3$  which, as  
described, was irradiated, yielded 0,5 mg  $\text{To}^{99}$ . Identification  
of  $\text{To}^{99}$  took place spectroanalytically and by measuring the ab-  
solute activity of the  $\beta$ -energy.

Card 1/2

On the Production of Weighable Amounts of  $\text{To}^{99}$   
From Molybdenum Irradiated With Neutrons

SOV/89-5-2-7/36

Volatility of technetium, after various forms of treatment of its concentrates, was determined chemically. The data obtained agree with published data (Ref 15). There are 5 figures, 3 tables, and 15 references, 4 of which are Soviet.

SUBMITTED: May 10, 1958

Card 2/2

5(2)

AUTHORS:

Spitsyn, Vikt. I., Academician,  
Kuzina, A. F.

SOV/20 124-4-32/67

TITLE:

Investigation of Measurable Quantities of Technetium  
(Issledovaniye vesomykh kolichestv tekhnetsiya)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 124, Nr 4, pp 846-848  
(USSR)

ABSTRACT:

This paper is devoted to the synthesis of chemically pure technetium heptasulfide and ammonium pertechnate. The authors investigated absorption spectra of the pertechnate ion, carried out a gravimetric analysis of heptasulfide and measured the absolute activity of the isolated technetium preparation. Molybdic anhydride was used as an initial product of technetium extraction after a long irradiation with thermal neutrons. Technetium was isolated from the solution of ammonium molybdate by the adsorption method on difficultly soluble crystalline preparations of magnesium ammonium phosphate and magnesium hydrophosphate. Its further extraction was based on its property of being not absorbed in reduced state by phosphate precipitates. After additional treatments technetium was reduced to the tetravalent and partly to the bivalent state and, finally,

Card 1/3



Investigation of Measurable Quantities of Technetium SOV/20-124-4-32/67

collected in the filtrate in the form of an anion. The authors investigated by the radiation-absorption method in aluminum whether purified technetium sulfide contains radiochemical impurities. As the absorption curve (Fig 1) shows, there are no foreign radioactive impurities and the radiation energy of the preparation agrees with the data to be found in publications (Ref 2). Table 1 gives the results of the analysis of technetium. Its gravimetric analysis was checked by comparing it to the results of the radiometric analysis. Furthermore, the absolute activity of isolated technetium was calculated according to a formula. The measurements were carried out by means of safety glass with front counter (thickness of the mica windows: 1.9 mg/cm<sup>2</sup>). The absolute total activity amounted to 15.3  $\mu$ C/ which corresponds to 0.918 mg of metallic technetium if its specific activity is assumed to be 20  $\mu$ C/mg. The discrepancy of the radiometric and gravimetric analysis amounted to 5.4%. Figure 2 shows the absorption curve of the spectrophotometric investigation of ammonium pertechnetate. It is similar to those obtained by other scientists (Refs 3, 4), however, the maximum 2450 Å determined by the authors is closer to the short-wave range

Card 2/3

Investigation of Measurable Quantities of Technetium SOV/20-124-4-32/67

by 20 Å . The value of the molar coefficient of extinction amounted to 4407, contrary to that mentioned in publications which is 4000. The slight differences to publications may be due to various types of spectrophotometers with different resolving powers. There are 2 figures, 1 table, and 4 references, 2 of which are Soviet.

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR (Institute of Physical Chemistry of the Academy of Sciences, USSR)

SUBMITTED: October 25, 1958

Card 3/3

~~65931~~ 69531

S/078/60/005/05/04/037  
B004/B016

21.3100  
5.2200(A)

AUTHORS: Kuzina, A. F., Spitsyn, Vikt. I.

TITLE: A Chromatographic Method of Purifying Technetium<sup>27</sup>

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol. 5, No. 5,  
pp. 1006-1012

TEXT: The authors describe the purification of technetium preparations by means of the KU-2 cation exchanger in H-form at pH = 2. The Tc was obtained by irradiation of MoO<sub>3</sub> with thermal neutrons for 70 days. According to calculations MoO<sub>3</sub> was expected to contain  $3.5 \cdot 10^{-4}$  of Tc<sup>99</sup> after this period. The analysis of the pure MoO<sub>3</sub> applied, which was carried out in the spektral'naya laboratoriya Institute metallurgii im. A. A. Baykova Akademii nauk SSSR (Spectral Laboratory of the Institute of Metallurgy imeni A. A. Baykov of the Academy of Sciences of the USSR), showed that it contained some impurities in the order of magnitude of the Tc being formed. Further, the authors gathered from the paper by L. S. Fadeyeva, O. N. Pavlov, V. V.

Card 1/3

65831 69531

A Chromatographic Method of Purifying  
Technetium

S/078/60/005/05/04/037  
BC04/BO16

Bakunin (Ref. 2) that the irradiated  $\text{MoO}_3$  contained the following radio-isotopes:  $\text{Zn}^{65}$ ,  $\text{Co}^{60}$ ,  $\text{W}^{181}$ ,  $\text{Sb}^{124}$ ,  $\text{Zr}^{95}$ , and  $\text{Fe}^{59}$ . Therefore, the containers with the irradiated  $\text{MoO}_3$  were stored for 1 - 3 years, until the radioactive impurities disintegrated. The primary concentration of Tc was carried out by means of adsorption onto magnesium ammonium phosphate. This concentrate was purified by means of a KU-2 cation exchanger. The purity of Tc was tested by absorption of its radiation in Al (Fig. 1), by  $\beta$ -spectrum analysis (Fig. 2) made by N. P. Glazunov by means of the  $\beta$ - $\gamma$ -spectrometer of the ASS-1 type, and by analysis of the emission spectrum (Fig. 4) carried out by A. I. Akimov by means of a KSA-123 spectrograph. The spectrum lines of Tc are given. The  $\beta$ -spectrum is a single-component spectrum with a limiting energy of  $285 \pm 10$  kev. The Curie-Fermi diagram shown in Fig. 3 gives a value of 290 kev. Elution from the cation exchanger by means of HCl (Fig. 5 and Table), and measurement of the maximum radiant energy of the radioactive products by means of absorption in Al and Pb proved that the individual fractions contained  $\text{Zn}^{65}$  (eluted with 0.2 N HCl, Figs. 6,7),  $\text{Zr}^{95}$  (0.3 N HCl, Figs. 8,9),  $\text{W}^{181}$  (0.4 N HCl, Figs. 10,11),  $\text{Co}^{60}$  (0.6 N HCl, Figs. 12,

Card 2/3

A Chromatographic Method of Purifying  
Technetium

~~65931~~ 6953/  
S/078/60/005/05/04/037  
B004/B016

13), and Tc<sup>99</sup> (Fig. 14), which was eluted with 0.7 N HCl. The chromatographic method permits the production of chemically and radiochemically pure technetium preparations in a yield of 90%. Part of Tc is reduced and retained by KU-2. These losses increase with decreasing Tc concentration. There are 14 figures, 1 table, and 10 references, 9 of which are Soviet. ✓

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR (Institute  
of Physical Chemistry of the Academy of Sciences of the  
USSR)

SUBMITTED: October 6, 1958

Card 3/3

8/075/62/017/004/006/006  
1017/1217

AUTHOR:

Kuzina, A.E.

TITLE:

Photometric determination of technetium using fural- $\alpha$ -dioxime in hydrochloric acid solutions

PERIODICAL:

Zhurnal analyticheskoy khimii, v.17, no.4, 1962, 489-491

TEXT:

Absorption spectra of the technetium complex with fural- $\alpha$ -dioxime in HCl medium are studied. Results show reduction of  $Tc^{IV}$  to  $Tc^{III}$  analogously to the reduction which occurs in the case of thiocyanide complex of Tc. The reduction is accompanied by color changes, the oxidation state of the technetium was controlled polarographically. The complex of  $Tc^{IV}$  is yellow, and that of  $Tc^{III}$  is raspberry red. With increasing of the HCl concentration, the character of the spectrum does not change, but the value of the optical density increases. The spectrum of the complex technetium fural- $\alpha$ -dioxime shows 3 peaks at 430, 520 and 800 m $\mu$ . The 520 m $\mu$  peak is the highest. The determination is carried out by addition of 2,5 ml fural- $\alpha$ -dioxime (0.01M acetone solution to the sample solution (0.3 ml) containing 1N HCl and

Card 1/2

S/075/62/017/004/006/006  
1017/1217

Photometric determination...

0.5 ml 10% solution of  $\text{SnCl}_2$ . The measurements are carried out 2.5 hours after mixing, to obtain a stable coloration. The measured values are compared with a calibration curve obtained by carrying known amounts of technetium by the same procedure. The method permits determination of microgram quantities of technetium. The value of the experimental error is not pointed out. The investigations on the composition and the structure of the Tc furyl- $\alpha$ -dioxime complex will be continued. There are 4 figures. ✓

ASSOCIATION: Institute fizicheskoy khimii AN SSSR (Institute of Physical Chemistry, AS USSR) Moscow

SUBMITTED: February 26, 1962

Card 2/2

KUZINA, A.F.; ZHDANOV, S.I.; SPITSYN, Vikt.I., akademik

Polarography of technetium in perchlorate solutions. Dokl.  
AN SSSR 144 no.4:836-839 Je '62. (MIRA 15:5)

1. Institut fizicheskoy khimii AN SSSR.  
(Technetium) (Polarography)



30613

S/020/62/144/005/010/017  
B106/B138

21,4200  
AUTHORS:

Spitsyn, Vikt. I., Academician, Kuzina, A. F.,  
Zamoshnikova, N. N., and Tagil', T. S.

TITLE:

Extraction of technetium 99 from aqueous solutions with  
quinoline, tributyl phosphate, and some other organic solvents

PERIODICAL:

Akademiya nauk SSSR. Doklady, v. 144, no. 5, 1962, 1066-1068

TEXT: The authors were the first to study the extraction of technetium at room temperature with the following organic solvents: quinoline, tributyl phosphate (TBP), acetone, acetylacetone, and thenoyl trifluoro acetone  $C_8H_5O_2F_3S$  (0.2 M solution in benzene). They also studied the extraction of the complex compound of technetium and triphenyl guanidine chloride with n-butanol and chloroform. For comparison, the complexes of technetium with tetraphenyl arsonium chloride, and tetraphenyl phosphonium chloride with chloroform were also extracted. The long-lived isotope  $Tc^{99}$  in the form of pure 6-8 mg/l solutions of sodium pertechnate used for the extraction. In addition, the sodium pertechnate solution was oxidized with  $H_2O_2$  in an

Card 1/3

S/020/62/144/005/010/017  
B106/B138

Extraction of technetium 99 ...

alkaline medium before each extraction. The extraction of technetium was observed radiometrically. It was found that pure  $Tc^{99}$  can easily be extracted from neutron-bombarded molybdenum by quinoline and acetone. The results for technetium extraction with acetone will be published separately. With quinoline, the highest distribution coefficient ( $K = 83$ ) was reached at  $pH = 8$ . When technetium was reextracted, neither distillation of quinoline in vacuo, extraction with 0.2 M aqueous solutions of hydrazine sulfate or sodium thiosulfate, nor precipitation of technetium as  $CsTcO_4$  or  $RbTcO_4$  showed satisfactory results. Reextraction is possible if chloroform is added (in an amount equal to that of quinoline) to the system quinoline - water, 99.7% technetium passing into the aqueous phase. The extraction of technetium with TBP was studied in the acidity range 1 N NaOH to  $>6$  N  $HNO_3$ . Highest K value, 14.7, was obtained with 0.5 N  $HNO_3$  as medium, with this acidity, the composition of the extractable complex corresponds to the formula  $HTcO_4 \cdot 3TBP$ . Reextraction from the organic layer, was studied with water, HCl,  $HNO_3$ , and NaOH solutions of different concentrations, 4 N solutions of citric and oxalic acids, and

Card 2/3

Extraction of technetium 99 ...

S/020/62/144/005/010/017  
B106/B138

also  $(\text{NH}_4)_2\text{CO}_3$  and NaOH. Best results were with 10-12 N  $\text{HNO}_3$  (90.8-99% reextraction) and 4 N NaOH (50% reextraction). With acetyl acetone and thenoyl trifluoro acetone the K was 1.3 ( $\text{HNO}_3$ , pH = 4), and  $< 0.001$  ( $\text{HNO}_3$ , pH = 3), respectively. With triphenyl guanidinium chloride, however, it was much lower than with the two comparison complexing agents. V. I. Kuznetsov and N. N. Basargin supplied triphenyl guanidine chloride synthesized by their own method (Metody analiza metallov i splavov (Mater. nauchno-tekhnich. soveshch.) (Methods of analyzing metals and alloys (Material from a scientific-technical conference)), part II, M., 1961, p.3). There are 1 figure and 2 tables. The three English-language references are: S. Tribalat, J. Beydon, Anal. Chim. Acta, 6, 96 (1952); 8, 22 (1953); J. E. Boyd, Q. V. Larson, J. Phys. Chem., 64, 988 (1960).

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR (Institute of Physical Chemistry of the Academy of Sciences USSR)

SUBMITTED: January 30, 1962

Card 3/3

S/020/62/145/001/014/018  
B145/B101

AUTHORS: Kuzina, A. F., Tagil', T. S., Zamoshnikova, N. N., and  
Spitsyn, Vikt. I., Academician

TITLE: Extraction of technetium 99 by acetone

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 145, no. 1, 1962, 106 - 108

TEXT: It was found that acetone in an aqueous medium is salted out by  $\text{Na}_2\text{MoO}_4$  and NaOH (the best conditions being: 200 g  $\text{Na}_2\text{MoO}_4$ /l, with 5N NaOH; increase in the acetone volume at a phase ratio of 1:1 not more than 5 %).  $\text{Tc}^{99}$  can be extracted selectively from alkaline aqueous solutions with acetone in the presence of other radioelements. The optimum NaOH concentration (1 ml acetone, 1 ml alkaline phase, 10.2 mg/l Tc as pertechnetate, time of extraction: 5 minutes, 25 - 27°C) was 4 - 5 moles/l with a distribution factor  $K = 10$  (92 % extracted). In the presence of 75 g/l  $\text{Na}_2\text{MoO}_4$ ,  $K$  was 8 with 4 N NaOH (90 %) and 10 with 5 N NaOH (91 %). When the phase ratio was changed by one order of magnitude, the degree of extraction remained practically constant. Reaction solutions obtained by

Card 1/2

S/020/62/145/001/014/018  
B145/B101

Extraction of technetium 99 ...

neutron bombardment of  $\text{Na}_2\text{MoO}_4$  were extracted with acetone (2 - 3 N NaOH,

V aqueous phase: V organic phase = 2 : 1, time of extraction : 5 - 10 minutes ) giving radiochemically pure  $\text{Tc}^{99}$  ( $\beta$  -  $\gamma$  spectrum analysis:  $290 \pm 10$  kev end-point energy). There are 2 figures and 4 tables. The English-language reference is: S. L. Taimuty, Phys. Rev., 81, 461 (1951).

SUBMITTED: February 10, 1962

Card 2/2

KUZINA, A. F.; ZAMOSHNIKOVA, N. N.; et al

"Chemical and Electrochemical Properties of Technetium in Water Solutions."

report submitted for 2nd Intl Conf, Peaceful Uses of Atomic Energy, Geneva,  
31 Aug-9 Sep 64.

SPITSYN, V.I., akademik; KUZINA, A.F., kand.khim.nauk

Technetium; the first artificial element. Priroda 53 no.3:59-63 '64.  
(MIRA 17:4)

1. Institut fizicheskoy khimii AN SSSR, Moskva.

KARPUKHIN, G.I.; KUZINA, A.I.

Analysis of the causes of increased occurrence of typhoid fever  
in Cherekhovo and Svirsk. Trudy Irk. NIEM no. 7:263-275 '62  
(MIRA 19:1)

1. Iz laboratorii kishhechnykh infektsiy Irkutskogo nauchno-issle-  
dovatel'skogo instituta epidemiologii i mikrobiologii.



KUZINA, A.I.

Some characteristics of tularemia in Kemerovo Province as compared with tularemia in neighboring territories and provinces of Western Siberia. Trudy Irk. NIIM. no. 7.161-167 '62  
(MIRA 19:1)

1. Iz Irkutskogo nauchno-issledovatel'skogo instituta epidemiologii i mikrobiologii i Kemerovskoy oblastnoy sanitarno-epidemiologicheskoy stantsii.

KUZINA, A.I.; ISTOMINA, T.I.

Epidemiological characteristics of the outbreak of paratyphoid fever in one of the populated places in Irkutsk Province.  
Trudy Irk. NIIEP no. 7:276-281 '62. (MIRA 19:1)

1. Iz Irkutskogo nauchno-issledovatel'skogo instituta epide-  
miologii i mikrobiologii i Irkutskogo oblastnogo otdela zdavo-  
okhraneniya.

KUZINA, A.I.; MALETINA, M.V.

Problems of the epidemiology of colienteritis in infants in the  
city of Irkutsk. Trudy Irk. NIEM no. 7:300-309 '62  
(MIRA 19:1)

1. Iz laboratorii kishhechnykh infektsiy Irkutskogo nauchno-  
issledovatel'skogo instituta epidemiologii i mikrobiologii.

KUZINA, A.I.; FLORENSOVA, V.A.

Brief history of the Institute. Trudy Irk. NIEM no. 7:  
3-14 '62 (MIRA 19:1)

KUZINA, A.I.; MUKHAROVA, L.S. Prinimali uchastiye: VLADIMIROVA, A.I.;  
ARKATOVSKIY, P.A.; IL'INA, D.A.; SHTIN, V.M.

Natural tularemia foci in Kemerovo Province. Trudy Tom NIIVS  
12:43-47 '60 (MIRA 16:11)

1. Kafedra epidemiologii Leningradskogo sanitarno-gigiyenicheskogo meditsinskogo instituta i Kemerovskaya oblastnaya sanitarno-epidemiologicheskaya stantsiya.

\*

KUZINA, A.I.

Epidemiology of tularemia in Kemerovo Province. Zhur.mikrobiol., epid. i  
immun. 30 no.11:68-72 '59. (MIRA 13:3)

1. Iz Leningradskogo sanitarno-gigiyenicheskogo meditsinskogo instituta  
i Kemerovskoy oblastnoy sanitarno-epidemiologicheskoy stantsii.  
(TULAREMIA epidemiol.)

KUZINA, A. I. Cand Med Sci — (diss) "Epidemiological characteristics of tularemia in the Kemerov Oblast during 1951-1956," Leningrad, 1960, 23 pp, 300 cop. (Leningrad Sanitary Hygiene Medical Institute)  
(KL, 45-60, 128)

KUZINA, A.I.

Importance of the water factor in the distribution of tularemia in Kemerovo Province. Trudy Tom NIIVS 12:53-58 '60  
(MIRA 16:11)

1. Kafedra epidemiologii i Leningradskogo sanitarno-gigiyenicheskogo meditsinskogo instituta i Kemerovskaya oblastnaya sanitarno-epidemiologicheskaya stantsiya.

\*



*KUZINA, A. M.*

AUTHORS: Ramm, M. S., Candidate of Technical Sciences, 6-12-1/14  
Ponomarev, Ye., V., Kuzina, A. M.

TITLE: Precise Determination of the Details in the Method of the Non-Distorted Model (Utochneniye detaley sposoba neiskazhennoy modeli).

PERIODICAL: Geodeziya i Kartografiya, 1957, Nr 12, pp. 28 - 40 (USSR).

ABSTRACT: The more accurate form obtained in the Laboratory for Aeromethods AN USSR for the method of the model is given here. The investigations referred to the case of a determination of the "banks" (increased height) of many points lying on a stereopair, on a stereocomparator without correcting device. The largest part of the conclusions obtained here also applies to other cases where this method of the non-distorted model is employed. The strict theoretical foundation of this method is only set forth in the doctor's dissertation by G. V. Romanovskiy "Analytical methods for the photogrammetric point-determination" which was hitherto not yet published. Some formulae from this dissertation are given here. Only formulae which are not to be found in any publication and whose derivation was carefully checked by the authors of the present paper are given. At first the linear interpolation of the  $\phi$ -value is given. Then the orientation of the aerial photographs is investigated on the apparatus and it is shown

Card 1/3

Precise Determination of the Details in the Method of the Non-Distorted Model. 6-12-1/14

that it is more expedient in the first approximation to replace the standard formula :

$\Delta q = \frac{f^2}{1} (\varphi_a - \varphi_b)$  by a more accurate one with whose aid the  $\Delta q$  may at once be obtained. This formula is derived here. Then the influence of the error of orientation is investigated. It is shown that a comparison of the calculations of permissible errors of orientation indicates that in the work according to the method recommended here the demands made on the accuracy of orientation may be reduced by the 3 to 6-fold amount. When the reduction-points are selected in a manner that the parallax of each of them does not too much differ from the parallax of the support lying next, and when the method given here is employed for the construction of the  $\varphi$ -diagrams and those of geodetical orientation, it is possible to restrict oneself to only one orientation considerably more often than it is otherwise customary. In the last chapter the determination of the parallactic coefficient is given. The derivation of the necessary accuracy in determinations of  $H_0$  and  $p$  is given, as well

Card 2/3

as recommendations for attaining this accuracy.  $H_0$  is the flight

Precise Determination of the Details in the Method of the Non- 6-12-1/14  
Distores Model.

altitude above the starting point from which the increased heights  
are begun to be read.  $p$  - is the longitudinal parallax. The parallax=  
tic coefficient  $k = H_0 : p$ .

There are 2 tables, and 2 Slavic references.

AVAILABLE: Library of Congress.

Card 3/3

21323

S/154/60/000/006/004/006  
B116/B201

9,5320 (also 1227)

AUTHORS: Kuzina, A. M., senior Laboratory Assistant, Ramm, N. S.,  
junior scientific worker, Semenchenko, I. V., junior  
scientific worker

TITLE: Polarizing light filters in marine aerial photography

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Geodeziya i  
aerofotos"yemka, no. 6, 1960, 83-95

TEXT: The present paper deals with the theory and methods of reducing  
the solar reflection in marine aerial photography with the aid of  
polarizing light filters (polaroids). The recommendation to use the  
latter for such purposes has been made in Refs. 17, 18. Experimental  
marine aerial photographs with the use of polaroids were taken by the  
Laboratory of Aerial Methods of the AS USSR in summer 1958. It was found  
possible to extinguish the reflections in question. Still, polaroids  
are no universal means for their elimination. The theory of reduction  
of brightness of reflection with the aid of a polaroid is described first,  
and the following formulas are derived:

Card 1/12

21323

S/154/60/000/006/004/006  
B116/B201

Polarizing light filters in ...

$$s = T_r : 0.5 k = 1 - q + 2q \cos^2 \xi \quad (3)$$

$$q = \left[ \frac{\sin^2(\varphi - \psi)}{\sin^2(\varphi + \psi)} - \frac{\tan^2(\varphi - \psi)}{\tan^2(\varphi + \psi)} \right] : \left[ \frac{\sin^2(\varphi - \psi)}{\sin^2(\varphi + \psi)} + \frac{\tan^2(\varphi - \psi)}{\tan^2(\varphi + \psi)} \right] \quad (5)$$

$$\sin \phi = \sin \varphi : n = 0.75 \sin \varphi \quad (6), \quad \sin \beta' = \sin \beta : n' = \sin \beta : 1.521 \quad (7), \quad \cos 2\varphi = \sin h \cos \beta - \cos h \sin \beta \cos \gamma \quad (8),$$

$$\sin \gamma = \cos h \frac{\sin \epsilon}{\sin 2\varphi} \quad (9), \quad \cos \alpha = \cos \beta \cos \varphi + \sin \beta \sin \varphi \cos \gamma \quad (10),$$

$\text{ctg } \epsilon = \cos \beta' \tan \gamma \quad (11), \quad \cos \xi = -\cos \gamma \cos \epsilon + \sin \gamma \sin \epsilon \cos (\beta - \beta') \quad (12).$  It is possible by these formulas to calculate the values of  $s$  and  $\alpha$  for known  $h$ ,  $\beta$ , and  $\gamma$ .  $T_r$  is the amount of light passing through a real polaroid.  $k$  is a coefficient dependent upon the quality of the polaroid, and is about equal to 0.7-0.8.  $q$  is the polarization degree of the light incident upon the polaroid.  $\xi$  is the angle between the direction of the light vector in the polarized ray hitting the polaroid and that in the ordinary ray (which penetrates the polaroid).  $h$  is the sun height,

Card 2/12

21323

S/154/60/000/006/004/006  
B116/3201

Polarizing light filters in ...

$\beta$  is the angle of inclination of the projecting ray,  $\theta$  is the angle between the radius vector of the point concerned and the radius vector opposite to the sun's azimuth.  $\alpha$  is the angle of incidence of solar rays upon the water surface, and  $\phi$  the corresponding angle of refraction.  $n$  is the refractive index of water. All other angles may be seen from Fig. 3a. Such calculations have been made by the authors for different  $\beta$  and  $\theta$  values for  $h = 15, 25, 35$ , and  $45^\circ$ . Results are presented in Fig. 4 in the form of isolines of magnitudes  $\alpha^\circ$  and  $S\%$ . The  $\alpha$ -isolines are dashed, while the  $s$ -isolines are dash-dotted. Fig. 4 was obtained on the assumption that the axis of the polaroid is precisely perpendicular to the plane of the sun vertical. In the practice, this involves a certain error  $\%$ . It is found to be necessary for the polaroid to be adjusted with sufficient accuracy, as already at  $\alpha = 5^\circ$  the coefficient  $s$  becomes very large (Fig. 5). The  $S$ -isolines (Fig. 4) refute the opinion holding that the polaroid is able to extinguish only a very narrow strip of the hotspot (in perpendicular to its axis). This widely accepted opinion is based upon the identification of the angle  $\theta$  with the angle  $\alpha$ . A knowledge of the  $S$ -isolines only is not sufficient to solve the problem as to how the reflection can be reduced, since the density of the

Card 3/12.

Polarizing light filters in ...

21323  
S/154/60/000/006/004/006  
B116/B201

negative is not proportional to the brightness of the object. The reduction of the density of reflection in the point concerned is shown to depend not only on  $s$  but also on the brightness of reflection in this point. The brightness again depends on the form of the water surface, i.e., on the hydrometeorological conditions. Table 1 gives the absorption and reduction values of reflection, as obtained from the analysis of the above-mentioned experiment. It follows from Fig. 4 and Table 1 that only at  $h \leq 45^\circ$  it is suitable to use the polaroids to reduce reflection and only at a focal length of the aerial camera of  $f \leq 140$  mm (format of picture taken as  $18 \times 18$  cm). A complete extinction of reflection can in practice be achieved only at  $h \leq 25^\circ$ , while in the other cases the reflection with respect to surface and density is considerably reduced. The utilization of polaroids is the more effective, the wider the angle of the objective of the aerial camera. Finally, the method applied in the test under discussion is described. The axis of the polaroid must be marked. The polaroid must then be attached to the aerial camera. The time of exposure must be increased by 1 : 0.5 k, viz., by the threefold. This increase is the chief disadvantage displayed

Card 4/12

21323  
S/154/60/000/006/004/006  
B116/B201

Polarizing light filters in ...

by polaroids. Prior to operation, the polaroid must be adjusted correctly, by turning the handle of its frame to the graduation equaling the angle  $A$  between the direction toward the sun and the direction of the picture side. Experience has shown that it is by all means possible to adjust a polaroid with a maximum accuracy of  $5^\circ$ . The use of polaroids is not recommended in frequent changes of the flight azimuth with more than  $10-15^\circ$ . The experiment has also shown that the use of polaroids has no effect upon the sharpness and contrast of the pictures of sea-bottom contours or water surfaces. There are 5 figures, 1 table and 18 references; 16 Soviet-bloc.

ASSOCIATION: Laboratoriya aerometodov AN SSSR (Laboratory of Aerial Methods, AS USSR)

SUBMITTED: September 21, 1960

Card 5/12



ZDANOVICH, V.G., doktor tekhn. nauk, prof.; RAMM, N.S., kand. tekhn. nauk, st. nauchnyy sotr.; SHARIKOV, Yu.D., kand. tekhn. nauk, st. nauchnyy sotr.; YANUTSH, D.A., kand. tekhn. nauk, st. nauchnyy sotr.; CHERKASOV, I.A., kand. tekhn. nauk; ALEKSEYEV-SHEMYAKIN, V.P., nauchnyy sotr.; KOL'TSOV, V.V., nauchnyy sotr.; KOSHECHKIN, B.I., nauchnyy sotr.; SEMENCHENKO, I.V., nauchnyy sotr.; UGLEV, Yu.V., nauchnyy sotr.; KUZINA, A.M., starshiy laborant; KUDRITSKIY, D.M., kand. tekhn. nauk, dots., retsenzent; VEYNBERG, V.B., doktor tekhn. nauk, retsenzent; LOSHCHILOV, V.S., kand. geogr. nauk, retsenzent; REKHTZAMER, G.R., kand. tekhn. nauk, dots., retsenzent; KOZLYANINOV, M.V., kand. geogr. nauk, retsenzent; BUSHUYEV, A.V., inzh., retsenzent; ZAMARAYEVA, R.A., tekhn. red.

[Use of airborne methods to study the sea] Primeneniye aerometodov dlia issledovaniia moria. Pod obshchei red. V.G.Zdanovicha. Moskva, Izd-vo Akad. nauk SSSR, 1963. 546 p. (MIRA 16:4)

1. Akademiya nauk SSSR. Laboratoriya aerometodov. 2. Laboratoriya aerometodov Akademii nauk SSSR (for Zdanovich, Ramm, Sharikov, Yanutsh, Cherkasov, Alekseyev-Shemyakin, Kol'tsov, Koshechkin, Semenchenko, Uglev, Kuzina).

(Aeronautics in oceanography) (Aerial photogrammetry)

RAMM, N.S., mladshiy nauchnyy sotrudnik; KUZINA, A.M.

Theory of convergent aerial photogrammetry. Izv. vys. ucheb.  
zav.; geod. i aerof. no.3:85-99 '63. (MIRA 17:1)

1. Starshiy laborant Laboratorii aerometodov Gosudarstvennogo  
geodezicheskogo komiteta SSSR (for Kuzina.

KUZINA, A.M.; GORACHEK, I.M.

Improving the frames of round extension tables. Der. prom. 12  
no.10:14 O '63. (MIRA 16:10)

KLYUKOVA, A.L.; KUZINA, A.N.

ACTH in some eye diseases; author's abstract. Vest. oft. 72 no. 5:  
49-50 S-O '59. (MIRA 13:3)

1. Moskovskaya glaznaya klinicheskaya bol'nitsa (nauchnyy rukovoditel'-  
prof. M.L. Krasnov).  
(EYE DISEASES, ther.)  
(CORTICOTROPIN, ther.)

KUZINA, A.N.; MALETINA, M.V.; ADOMONITE, G.M.; GRISHINA, O.S.; GRANT, Kh.Ya. [Grants, H.]; KOVALEVA, V.I.; ZIL'FYAN, V.H.; MNATSAKANYAN, A.G.; BOYKO, L.D.; SVERCHKOV, A.N.

Authors' abstracts. Zhur. mikrobiol., epid. i immun. 41 no.11:138-143 '65. (MIRA 18:5)

1. Irkutskiy institut epidemiologii i mikrobiologii (for Kuzina, Maletina).
2. Gosudarstvennyy kontrol'nyy institut meditsinskikh biologicheskikh preparatov imeni Tarasevicha (for Adomonite).
3. L'vovskiy institut epidemiologii, mikrobiologii i gigiyeny (for Grishina).
4. Rzhskiy meditsinskiy institut (for Grant).
5. Dagestanskiy institut po proizvodstvu pitatel'nykh sred (for Kovaleva).
6. Yerevanskiy meditsinskiy institut i Respublikanskaya sanitarno-epidemiologicheskaya stantsiya (for Zil'fyan, Mnatsakanyan).
7. Kiyevskiy institut epidemiologii i mikrobiologii (for Boyko, Sverchkov).

*KUZINA, G. I*

PHASE I BOOK EXPLOITATION

441

Peshkin, Il'ya Solomonovich

Kak rozhdayetsya stal' (How Steel is Made) Moscow, Datgiz, 1957. 222 p.  
(Series: Shkol'naya biblioteka) 50,000 copies printed.

Resp. Ed.: Kuzina, G. I.; Tech. Ed.: Shevchenko, G. N.

PURPOSE: The purpose of this book published by the Government Publishing House for Children's Literature, is to acquaint young readers with the techniques of iron- and steelmaking from its beginnings to the present-day advanced techniques employed in the Soviet steel industry.

COVERAGE: The book begins by describing prehistoric uses of metals for making implements and weapons. The author outlines the development of the iron and steel industry in Russia and praises the achievements of Russian inventors, engineers and speed-up workers. Basic methods of steelmaking are described in nontechnical terms. There are numerous illustrations.

Card 1/3

441

How Steel is Made

TABLE OF  
CONTENTS:

Foreword	3
Ch. I. How Man Learned About the Properties of Iron	7
Ch. II. The Beginning	25
Ch. III. Food for Blast Furnaces	57
Ch. IV. How Our Blast Furnaces are Built and What Takes Place in Them	81
Ch. V. Blast Furnaces Obey the Will of Their Masters	97
Ch. VI. From Cast Iron to Steel	117
Ch. VII. Steelmaking in Progress	130
Card 2/3	

How Steel is Made	441
Ch. VIII. Speed-up Workers	142
Ch. IX. Grades of Steel	159
Ch. X. Birth of a Steel Ingot	174
Ch. XI. Final Stage	188
Ch. XII. Great Discoveries	193
Ch. XIII. Steel - the Basis of Our Growth	205
Ch. XIV. Today and Tomorrow	214
AVAILABLE: Library of Congress	

GO/bmd  
27 June 1958

Card 3/3



TUMANOV, I.I.; KUZINA, G.V.; KARNIKOVA, L.D.

Raising plants on gravel for research purposes. *Fiziol.rast.*  
7 no.3:320-325 '60. (MIRA 13:6)

I. K.A. Timiryazev Institute of Plant Physiology, U.S.S.R.  
Academy of Sciences, Moscow.  
(Plants--Soilless culture)

TUMANOV, I.I.; KUZINA, G.V.; KARNIKOVA, L.D.

Effect of photoperiods on the frost resistance of apricots and black currants. Fiziol.rast. 12 no.4:665-682 J1-Ag '65.

(MIRA 18:12)

1. Institut fiziologii rasteniy imeni K.A.Timiryazeva AN SSSR, Moskva. Submitted July 15, 1964.

KUZINA, I.M.

Agricultural geography of Iowa. Vop. geog. no. 53:63-84 '61.  
(Iowa—Agricultural geography) (MIRA 14:7)

ALYKSEYCHIK, S.N.; KUZINA, I.N.; RATNOVSKIY, I.I.

Stratigraphy of tertiary deposits of Sakhalin Island. Biul.MOIP.  
Otd.geol. 29 no.5:37-50 S-0 '54. (MIRA 8:1)  
(Sakhalin--Geology, Stratigraphic)

KOZYREV, V.D.; GRINBERG, I.G.; KUZINA, I.N.; ZHIDKOVA, L.S.; DVALI, M.F.,  
nauchnyy red; CHIZHOV, A.A., vedushchiy red.; YASHCHURZHINSKAYA, A.B.,  
tekhn.red.

[Geology, and oil and gas potentials of southern Sakhalin] Geolo-  
gicheskoe stroenie i gazoneftenosnost' iuzhnoi chasti Sakhalina.  
Leningrad, Gos.nauchn.-tekhn.izd-vo nefi.i gorno-topl.lit-ry  
leningr. otd-nie, 1960. 167 p. (Leningrad. Vsesoiuznyi neftianoi  
nauchno-issledovatel'skii gologo-azvedochnyi institut. Trudy, no.  
156) (MIRA 14:3)

(Sakhalin--Petroleum geology)

(Sakhalin--Gas, Natural--Geology)

RATNOVSKIY, I.I.; KUZINA, I.N.

Possibility of isolating three local-bearing series in the section  
of the Tertiary sediments of Sakhalin. Trudy VNIGRI no.163:429-  
436 '60. (MIRA 14:6)

(Sakhalin--Coal geology)

ZHIDKOVA, L.S.; KUZINA, I.N.

Lower Miocene stratigraphy of the eastern shore of Sakhalin  
(Gsatellovka series). Trudy VNIGI no.181:5-24 '61. (MIRA 15:2)  
(Sakhalin—Geology, Stratigraphic)

VLADIMIROV, A.S.; ZHIDIKOVA, L.S.; KUZINA, I.N.; RATNOVSKIY, I.I.

Comparison of typical stratigraphic cross sections of Neogene sediments  
in northeastern Sakhalin based on the study of macrofauna. Trudy VNIGRI  
no.224:195-201 '63. (MIRA 17:2)



BURENKOV, E.K.; KUZINA, K.I.

Significance of the prospecting reliability of indicator plants in prospecting for minerals as revealed by prospecting for boron deposits. Sov. geol. 8 no.8:89-96 Ag '65.

(MIRA 18:10)

1. Tsentral'naya geokhimicheskaya ekspeditsiya Geologo-geokhimicheskogo tresta Gosudarstvennogo geologicheskogo komiteta SSSR.

RESTINA, L.

AUST.

SHEVCHENKO, F.D.; KUZINA, L.A.

Solvolysis of germanium tetrachloride in ethanol. Ukr. khim.  
zhur. 29 no.4:351-356 '63. (MIRA 16:6)

1. Kiyevskiy gosudarstvennyy universitet im. T.G. Shevchenko.  
(Germanium chloride) (Solvolysis)  
(Ethyl alcohol)

KUZINA, L.A.

Coefficient of reflection and temperature condition of some  
roofing materials. Prom. stroi. 40 [i.e. 41.] no.3:48-50 Mr  
'63. (MIRA 16:3)

(Roofing—Testing)

SHEVCHENKO, F.D.; KUZINA, L.A.

Solvolysis of titanium tetrachloride in methanol. Ukr. khim. zhur.  
31 no.4:347-352 '65. (MIRA 18:5)

1. Kiyevskiy gosudarstvennyy universitet imeni Shevchenko.

L 63574-65 WP(m)/WP(t)/WP(t) TAP(6) CI

ACCESSION NR: AP5011419

UR/0073/65/031/004/0347/0352

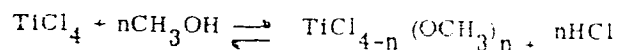
AUTHOR: Shevchenko, F. D., Kuzina, L. A.

TITLE: Solvolysis of titanium tetrachloride in methanol

SOURCE: Ukrainskiy khimicheskiy zhurnal, v. 31, no. 4, 1965, 347-352

TOPIC TAGS: titanium tetrachloride, halide solvolysis, methanolysis, titanium dioxide preparation, atomic radius

ABSTRACT: The object of this work was to study the equilibrium in the solvolysis of titanium tetrachloride in absolute methanol. Such a study is important in view of the use of methanol solutions of titanium tetrachloride in the synthesis of polymers. The partial equilibrium constants of the solvolysis reaction were determined by the method of titration with silver nitrate. The concentration of hydrogen chloride evolved during the solvolysis of  $TiCl_4$  in methanol. The solvolysis was shown to cause the successive substitution of methoxy groups for all four chlorine atoms. The partial equilibrium constants of the solvolysis reaction



were found to be:  $K_1 = 3 \times 10^{-1}$ ,  $K_2 = 5 \times 10^{-3}$ ,  $K_3 = 1 \times 10^{-5}$ ,  $K_4 = 2 \times 10^{-10}$ . It was

Card 1/2

L 63574-65

ACCESSION NR: AP5011419

shown that the rate of solvolysis of tetrachlorides of metals of the titanium subgroup in methanol solutions decreases from titanium to hafnium and zirconium, i.e., in the same

ASSOCIATION: Kiyevskiy gosudarstvennyy universitet Im. T. G. Shevchenko (Kiev State University)

SUBMITTED: 23Oct63

ENCL: 00

SUB CODE: IC

NO REF SOV: 004

OTHER: 005

Card 2/2

GUR'YANOVA, Ye. M.; SYRAIN, Ya. K.; KUZINA, L. S.

Sulfur - Isotopes

Study of reciprocal conversion of diethyldisulfide and diethyltrisulfide with the aid of a radioactive sulfur isotope. Dokl. AN SSSR 85 no. 5, 1952.

Monthly List of Russian Accessions, Library of Congress, December 1952. UNCLASSIFIED.



KUZINA, L. S.

1 Sep 52

USSR/Chemistry - Isotopes

"The Reaction of the Exchange of Sulfur Atoms in Polysulfides," Ye. N. Gur'yanova, Ya. K. Syrkin, Corr Mem, Acad Sci USSR, L. S. Kuzina

"Dok Ak Nauk SSSR" Vol 86, No 1, pp 107-110

The equivalence of sulfur atoms in diethyltetrasulfide and the inorg polysulfides  $\text{Na}_2\text{S}_2$ ,  $\text{Na}_2\text{S}_3$ , and  $\text{Na}_2\text{S}_4$  was studied using radioactive  $\text{S}^{35}$ . Diethyltrisulfide was treated with radioactive elemental sulfur to obtain tagged diethyltetrasulfide. This was then decomposed 1st to diethyltrisulfide and then to diethyldisulfide. The diethyltrisulfide was radioactive but not the diethyldisulfide. In the inorg polysulfides, all of the sulfur atoms were about equal in radioactivity.

PA 234T19

USSR/Chemistry - Physical chemistry

Card 1/1 : Pub. 147 - 5/27

Authors : Guryanova, E. N., and Kuzina, L. S.

Title : Kinetics and mechanism of sulfur interchange reaction between tetramethylthiuramdisulfide and elementary sulfur

Periodical : Zhur. fiz. khim. 28/12, 2116-2128, Dec 1954

Abstract : The S interchange reaction between tetramethylthiuramdisulfide and elementary S was investigated in the following solvents: benzene, toluene, xylene, mesitylene, decalin, naphthalin, glycerin, dibutylphthalate and tricresyl phosphate. It was found that 4 S atoms interchange in tetramethylthiuram-sulfide, the thermal dependence of the rate of interchange reaction does not respond to the Arrhenius equation and that the rate of reaction was found to be proportional to the square root of the tetramethylthiuramsulfide concentration. It was also established that tetramethylthiuramsulfide enters into interchange reaction with elementary S in the form of radicals. The presence of a sulfur association in the solutions was established cryoscopically at 120 - 130°. Eleven references ; 6 USSR; 4 USA and 1 Italian (1930-1954). Tables; graphs.

Institution : The L. Ya. Karpov Scientific Research Physico-Chemical Institute, Moscow

Submitted : January 15, 1954

KUZINA, L.S.

✓4033 AEC-tr-2435 (Pl. 2) (p. 163-76)

SULFUR EXCHANGE IN POLYSULFIDES AND IN VARIOUS  
VULCANIZATION ACCELERATORS. E. M. GILYEROV. *all*

V. N. Vasil'eva (Vasil'eva), and L. S. Kuzina, p. 163-76

of CONFERENCE OF THE ACADEMY OF SCIENCES OF  
THE USSR ON THE PEACEFUL USES OF ATOMIC ENERGY, *2*

JULY 1-5, 1955. SESSION OF THE DIVISION OF CHEM-  
ICAL SCIENCE. (Translation). 14p.

This paper was originally abstracted from the Russian  
and appeared in Nuclear Science Abstracts as NSA 9-7682. *RM*

M.A. YOUTZ  
2 copies

8  
6  
0  
2

ko2.1571

✓ Exchange of sulfur in polysulfides and vulcanization ac-  
celerators. E. N. Gurfyanova, V. N. Vasil'eva, and L. S.  
Kuzina. *Zhurnal Khim. Fiz.* 55, No. 10, 1982, 2082-2085.  
English transl. in *Chem. Abstr.* 1983, 108:1082. Also in  
*Chem. Abstr.* 1983, 108:1082. Also in *Chem. Abstr.* 1983, 108:1082.  
Nauk, 270-08 (English summary, 208-30). - A general  
review with 8 references. G. M. Kosolapoff

2.1571

① 18  
7/4/81

KUZINA, L. S.

Kuzina, L. S. -- "Isotope Exchange of Sulfur in Certain Derivatives of Dithiocarbamic Acids and Their Structure." Min Chemical Industry USSR. Order of Labor Red Banner Sci Res Physicochemical Inst imeni L. Ya. Karpov. Moscow, 1956. (Dissertation For the Degree of Candidate in Chemical Sciences).

So: Knizhnaya Letopis', No. 11, 1956, pp 103-114

**CIA-RDP86-00513R000928010**

AGCINA, Ltd

Time -

CH<sub>3</sub>OC(S)SSC(S)OCCH<sub>3</sub> 2,2'-bis[4-(methylthio)phenyl]disulfide, 44

**CIA-RDP86-00513R0009280100**

5(4)

AUTHORS:

Gur'yanova, Ye. N., Kuzina, L. S.

SOV/76-32-10-12/39

TITLE:

Isotopic Exchange of Sulfur in the Salts of Dithiocarbamic Acid (Izotopnyy obmen sery v solyakh ditiokarbaminovykh kislot)

PERIODICAL:

Zhurnal fizicheskoy khimii, 1958, Vol 32, Nr 10, pp 2301-2307 (USSR)

ABSTRACT:

The influence of the composition and the structure of the compounds mentioned in the title on the mobility of sulfur as well as on the exchangeability of these compounds were systematically investigated. Purely qualitative experiments were carried out to determine the conditions of exchange and the number of sulfur atoms that can be exchanged, and to carry out measurements of some exchange reactions in different solvents. The method of synthesis and purification of the preparation was described earlier (Ref 5). The isotopic exchanges of sulfur in the cyclopentamethylene dithiocarbamate of piperidine, in sodium-di-iso-butyl dithiocarbamate, in the diethyl dithiocarbamates of lead, bismuth, zinc and nickel as well as diphenyl dithiocarbamic acid were investigated. The velocity constants of the isotopic exchange were calculated according to an equation

Card 1/3

SOV/76-32-10-12/39

Isotopic Exchange of Sulfur in the Salts of Dithiocarbamic Acid

given. Although the sulfur atoms are structurally differently bound (C=S and C-S-Me) in the compounds investigated they still have the same exchangeability. In contrast to Thiuram and its salts only one sulfur atom is exchanged in the dithiocarbamic esters  $R_2N-CS-SR'$ . It was found that in the different salts of this acid the exchangeability of sulfur depends to a high degree on the nature of the salt. Whereas an exchange with elementary sulfur in sodium salts takes place at 50-60°, a temperature of 120° is necessary with lead and bismuth salts, one of 140-150°C with zinc diethyl dithiocarbamate, and one of 170-180°C with nickel salt. These differences in exchangeability are explained by the dissociation capability with ions at the sulfur - metal bond. Experiments on the influence of the solvent on the isotopic exchange of elementary sulfur and some salts of dithiocarbamic acid showed that the exchange depends on the capability of dissociation of the solvent. This fact is especially important, as compounds of the type investigated are used as active accelerators in rubber vulcanization. There are 1 figure, 3 tables, and 10 references, 10 of which are Soviet.

Card 2/3



SOV/76-32-10-12/39

Isotopic Exchange of Sulfur in the Salts of Dithiocarbamic Acid

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova, Moskva  
(Institute of Physics and Chemistry imeni L. Ya. Karpov, Moscow)

SUBMITTED: May 3, 1957

Card 3/3

5(4), 21(1)

SOV/76-33-9-23/37

AUTHORS: Kuzina, L. S., Gur'yaneva, Ye. N.

TITLE: Isotopic Exchange of Sulphur in Thiurams and Esters of Dithiocarbamic Acid

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 9, pp 2030 - 2035 (USSR)

ABSTRACT: Since the derivatives of dithiocarbamic acids have found wide application as vulcanization accelerators (VA), insectofungicides, and in medical preparations, an investigation of the mobility of the sulphur atoms of these compounds would be of some interest. This article is a continuation of previous investigations (Refs 3, 5-7). The influence exerted by several structural factors upon the exchangeability of sulphur in thiurams (I) and dithiocarbamic esters (II) was investigated here, and some problems were especially taken into account. Further, the authors investigated the isotopic exchange (IE) with elemental radioactive S on (I), (II), and isothiocyanates (altogether 15 compounds), and determined the number of exchangeable S-atoms in the compounds under investigation, as well as the optimum conditions of exchange. Activation energy was determined for seven compounds.

Card 1/3

Isotopic Exchange of Sulphur in Thiurams and Esters  
of Dithiocarbamic Acid

307/76-33-9-23/37

The methods of synthesizing the preparations used as well as data on their properties have already been indicated. After (IE), the components were separated in different manner (selective dissolution, fractional vacuum distillation. The number of exchangeable S-atoms was determined from the ratio of activities of the components being in equilibrium; the results are listed (Tables 1-4). As the number of S-atoms in the polysulphide bridge of (I) increases, the rate of exchange (RE) with elemental sulphur rises. In tetramethyl thiuram tetrasulphide, the two central S-atoms are exchanged more easily, while the exchange of the four outer S-atoms (linked to carbon) is somewhat more complicated. However, the difference is not so great as to allow separate exchange. An exchange of the aliphatic radicals for phenyl radicals in thiuram disulphides causes a considerable deceleration of (RE). The radicals of the amino group exercise different influence upon the exchange in (I) and (II). It is assumed that (I), which possess more S-atoms, will be more active (VA) than (I) with a smaller content of S. In this connection, it is, however, necessary to take the solubility in rubber into account. Thiuram disulphides with aromatic radicals

Card 2/3

Isotopic Exchange of Sulphur in Thiurams and Esters  
of Dithiocarbamic Acid

SOV/76-33-9-23/37

probably are less active (VA) than (I) with aliphatic radicals.  
The scientists I. I. Kukhtenko, L. Ye. Bruksler, G. P. Miklukhin,  
and A. I. Brodskiy are mentioned. There are 4 tables and 8  
Soviet references.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova g. Moskva  
(Physico-chemical Institute imeni L. Ya. Karpov, City of Moscow)

SUBMITTED: February 28, 1958

Card 3/3

ZUYEVA, Z.; KUZINA, M.

Issuing credit to special accounts in combination with payment  
operations. Den. i kred. 21 no. 2:22-25 F '63. (MIRA 16:2)  
(Moscow—Credit)

KUZINA, M. F.: Master Med Sci (diss) -- "Aspects of disorders of the cardiovascular and nervous system in patients with toxic diphtheria of the pharynx (Based on material from the Minsk Infectious Clinical Hospital in recent years)". Minsk, 1958. 13 pp (Minsk State Med Inst), 150 copies (KL, No 17, 1959, 111)

FILIPPOVICH, A.N.; KUZINA, M.F.

Clinical variants of toxic diphtheria of the fauces. Zdrav. Belor.  
5 no.2:14-16 F '59. (MIRA 12:7)

1. Iz kafedry infektsionnykh bolezney (zaveduyushchiy - prof. A.N.  
Filippovich) Minskogo meditsinskogo instituta.  
(DIPHTHERIA)

KUZINA, M.F.

Electrocardiographic changes in patients with toxic diphtheria of the pharynx. Zdrav. Belor. 6 no.6:40-42 Je '60. (MIRA 13:8)

1. Kafedra infektsionnykh bolezney (zav. - prof. A.N.Filippovich)  
Minskogo meditsinskogo instituta.  
(DIPHTHERIA) (PHARYNX--DISEASES)  
(ELECTROCARDIOGRAPH)



83. Nitrate Complex of Uranyl in Acetone Investigated

"Concerning the Formation of a Nitrate Complex of Uranyl in Acetone," by V. M. Vdovenko, A. A. Lipovskiy, and M. G. Kuzina, Zhurnal Neorganicheskoy Khimii, Vol 2, No 4, Apr 57, pp 970-974

The formation of a complex uranyl compound in acetone when aniline nitrate or pyridine nitrate are used as donors of nitrogroups was investigated. The constitution of the complex compound was established by the spectrophotometric method. The constant of the stability of this compound was determined. It was shown that the stability of the complex  $[UO_2(NO_3)_3]$  ion depends on the type of solvent used and the content of water in the organic phase. A new complex compound of pyridine nitrate with uranyl nitrate was isolated. Its composition was found to correspond to the empirical formula  $(C_5H_5NH)_2 UO_2(NO_3)_4 \cdot 2H_2O$ . In the ultra-violet part of the absorption spectrum of the complex  $[UO_2(NO_3)_3]$  ion a regular structure was found against a background of continuous absorption.

(U)

82. Extraction of Uranyl Nitrate With Dibutyl Ether Investigated

"The Distribution of Nitric Acid and Uranyl Nitrate Between an Aqueous Solution and Dibutyl Ether," by V. M. Vdovenko, A. A. Lipovskiy, and M. G. Kuzina, Zhurnal Neorganicheskoy Khimii, Vol 2, No 4, Apr 57, pp 975-979

The distribution of nitric acid between aqueous solutions and dibutyl ether was investigated. The high solubility of nitric acid in the ether is explained by the formation of an oxonium compound. The distribution of uranyl nitrate between an aqueous solution containing nitric acid and dibutyl ether was investigated in dependence on the concentration of nitric acid in the aqueous phase. It was established that, as the concentration of nitric acid in the aqueous phase increases, the concentration of the complex  $[UO_2(NO_3)_3]$  ion in the dibutyl ether also increases. The reduction of the coefficient of distribution of uranium at very high concentrations of nitric acid is explained by a competition between the substances being extracted.

(U)

5(2)

05864

AUTHORS:

Vdovenko, V.M., Lipovskiy, A.A.  
Kuzina, M.G.

SOV/78-4-11-17/50

TITLE:

The Distribution of Cs, Ca, Sr and La Among Aqueous Solution  
and Methyl-butyl Ketone in the Presence of Uranium

PERIODICAL:

Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 11,  
pp 2502-2504 (USSR)

ABSTRACT:

Uranium may be easily separated from elements of group I, II and III of the periodic system by means of the methyl-butyl ketone (MBK) in which the nitrates of these elements are unsoluble. As uranium is, under certain conditions, extracted also as  $\text{H}_2\text{UO}_2(\text{NO}_3)_3$  (Ref 3), it is possible that Cs, Ca, Sr and La are included in the extraction in the form of the corresponding salts. The authors therefore investigated the distribution of  $\text{Cs}^{137}$ ,  $\text{Ca}^{45}$ ,  $\text{Sr}^{89}$ ,  $\text{Sr}^{90}$  and  $\text{La}^{140}$  among the aqueous solution of nitrates and MBK in dependence on the uranyl-nitrate concentration. The latter was varied from 0.1 - 0.5 mole, the concentration of the nitrate ions was kept stable by a corresponding addition of  $\text{Ca}(\text{NO}_3)_2$ , and hydrolysis of the uranium salt could be prevented by the

Card 1/2

The Distribution of Cs, Ca, Sr and La Among Aqueous  
Solution and Methyl-butyl Ketone in the Presence of  
Uranium

65864

SOV/78-4-11-17/50

addition of 0.1n  $\text{HNO}_3$ . Table 1 demonstrates the influence exercised by the uranyl nitrate upon the distribution of Cs, Sr and La. Table 2 shows the same for Ca, the latter being determined radiometrically and gravimetrically. With rising concentration of  $\text{UO}_2(\text{NO}_3)_2$  an increasing amount of Cs, Ca, Sr and La is carried away by MBK in the form of the salts  $\text{MUO}_2(\text{NO}_3)_3$ , the existence of which was proved by the absorption spectrum (Fig 1). There are 1 figure, 2 tables, and 5 references, 2 of which are Soviet.

SUBMITTED: July 2, 1958

Card 2/2

VDOVENKO, V.M.; LIPOVSKIY, A.A.; KUZINA, M.G.

Spectrophotometric investigation of the formation of complex nitrate compounds of plutonyl in acetone. Radiokhimiia 2 no.3:301-306 '60.

(MIRA 13:10)

(Plutonyl compounds—Spectra)

VDOVENKO, V.M.; LIPOVSKIY, A.A.; KUZINA, M.G.

Spectrophotometric investigation of the formation of complex nitrate compounds of plutonyl in aqueous solutions, and extraction of Pu(VI) with dibutyl ether. Radiokhimiia 2 no.3:307-311 '60. (MIRA 13:10)  
(Plutonyl compounds--Spectra) (Extraction (Chemistry))

VDOVENKO, V.M.; LIPOVSKIY, A.A.; KUZINA, M.G.

Formation of the complex compound neptunyl trinitrate. Radiokhimiya:  
2 no.3:312-314 '60. (MIRA 13:10)  
(Neptunyl compounds)

21,3200

22493

S/186/61/003/003/017/018

E071/E435

AUTHORS: Vdovenko, V.M., Lipovskiy, A.A. and Kuzina, M.G.

TITLE: On the Adsorption of Uranyl Nitrate From Organic Solvents With Anion-Exchange Resins

PERIODICAL: Radiokhimiya, 1961, Vol.3, No.3, pp.365-371

TEXT: Strongly basic anion-exchange resins are widely used for separation of simple and complex anions from aqueous solutions. High molecular aliphatic amines are also used for this purpose. At present extraction with amines is considered as an ionic exchange on a liquid anionite. Also, for the extraction it is considered necessary that the element under separation from its aqueous solution is in the state of a complex anion. It is also possible to describe the extraction (and adsorption on a resin) starting from the formation of a non-charged complex, forming with an amine salt, the extractable complex compound. In both cases, after the extraction the same compound is found in the organic phase. An experimental proof of the mechanism of separation related to the formation of a complex compound can be obtained by investigating the separation with anion-exchange resins from solutions which do not contain an excess of anions and in which the  
Card 1/4



22493

S/186/61/003/003/017/018

E071/E435

On the Adsorption of Uranyl ...

element under separation is known to exist in the form of a neutral complex. For this purpose, the authors investigated the separation of uranyl nitrate from a number of organic solvents on an anion-exchange resin AM, the capacity of which in respect of  $\text{NO}_3^-$  ion was 2.9 mg-equiv. per 1 g of resin. A weighed sample of the resin (1 g) in  $\text{NO}_3^-$  form was shaken with 10 ml of a solution of uranyl nitrate dihydrate for 20 to 25 hours. Previously it was established that this time is sufficient to attain equilibrium. Uranium was washed out from the resin with 0.1 N nitric acid and analysed colorimetrically. The analysis of the equilibrium liquid phase was also carried out. In experiments on the separation of uranium from organic extracts, air dried resin was used, in all other cases it was dried at  $70^\circ\text{C}$ . The coefficients of distribution of uranium between resin and organic solvents were calculated from the formula:  $K_p(\text{mg U/g resin}) / (\text{mg U/ml solution})$ . Data on the adsorption of uranium from 16 different solvents by dried resin were obtained. The results indicate that adsorption of uranyl nitrate depends on the nature of the solvent. As the stability of uranyl trinitrate complex depends on the content of water in the organic phase, the influence of the latter on the

Card 2/4

22473

S/186/61/003/003/017/018

E071/E435

On the Adsorption of Uranyl ...

separation process was also investigated. It appears that the change in the dielectric constant of the solution due to an addition of water cannot explain the difference in the degree of adsorption and some change in the resin phase should be assumed. The presence of maximum on the adsorption curves at a certain content of water in the solution could be explained by the fact that at a certain water concentration, its presence leads to dissociation of the formed uranyl trinitrate complex. The influence of the concentration of the uranium in solution on its adsorption on the resin was also investigated. It was found that the coefficient of distribution ( $K_p$ ) is inversely proportional to the uranium concentration. Thus at low concentrations, uranium can be particularly well separated from organic solvents. From the resin, uranium can be easily extracted with 0.1 N nitric acid, the desorption can also be done with tributylphosphate. On the basis of the results obtained, it is concluded that adsorption of uranyl nitrate on resin can be related to the formation of complexes with the resin. There are 2 figures, 2 tables and 11 references: 2 Soviet-bloc and 9 non-Soviet-bloc. The four Card 3/4

22493

S/186/61/003/003/017/018

On the Adsorption of Uranyl ...

E071/E435

most recent references to English language publications read as follows: L.Kaplan, R.A.Hildebrandt, M.Ader, J.Inorg.Nucl.Chem., 2,153 (1956); J.Kennedy, R.V.Davies, J.Inorg.Nucl.Chem., 12,193 (1959); W.Gerrard, E.D.Macklen, Chem.Rev., 59,1105 (1959); C.W.Davies, B.D.R.Owen, J.Chem.Soc., 1676 (1956).

SUBMITTED: July 5, 1960

Card 4/4

21.4200

31889  
S/186/61/003/005/007/022  
E071/E485

AUTHORS: Vdovenko, V.M., Lipovskiy, A.A., Kuzina, M.G.

TITLE: The extraction of uranium (VI) with solutions of trioctylamine nitrate

PERIODICAL: Radiokhimiya, v.3, no.5, 1961, 555-566

TEXT: The extraction of uranium (VI) with solutions of trioctylamine (TOA) in various diluents (carbon tetrachloride, benzene, trichloroethylene, chloroform, chlorobenzene, bromobenzene, tetrachloroethane, dichloroethane, butylbromide and nitro-benzene) and the dependence of the separation of uranium with an anion exchange resin AM on the composition of the aqueous solution were investigated. Equal volumes of the phases were used for the extraction. The coefficient of distribution was calculated from  $\alpha_u = C_o/C_w$  where  $C_o$  and  $C_w$  - equilibrium concentrations of uranium in organic and aqueous phases. The re-extraction of uranium was done with a soda solution which was subsequently used for the colorimetric determination of uranium. In experiments on the separation of uranium with a resin, a strongly basic resin AM was used, its capacity in respect of  $\text{NO}_3^-$  was 2.9 mg/equiv per 1 g of air-dried resin. The coefficients of distribution were

Card 1/3

X

The extraction of uranium (VI) ...  
calculated from

31889  
S/186/61/003/005/007/022  
E071/E485

$$k_p = \frac{\text{g U/g resin}}{\text{g U/ml of solution}}$$

The composition of extracted compounds was determined by the absorption spectra. It was shown that the lack of correspondence in data obtained by various methods on the determination of the composition of uranium compounds in the organic phase is due to changes in the nature of the association of amine nitrate caused by the extraction of excess nitric acid. In all the cases investigated the extraction of uranium with TOA nitrate is related to the formation of a complex compound of uranyltrinitrate. The dependence of the coefficients of distribution of uranium on the composition of aqueous solution indicates that the formation of uranyl nitrate molecules is necessary for the extraction of uranium. The extraction of uranium with TOA solutions in various diluents can be represented as a process of complex formation between neutral molecules of uranyl nitrate and molecules of aminenitrate. The sorption of uranium with anion exchange resins can be described similarly. The analogy between the extraction of uranium with amines and its extraction with oxygen containing solvents from  
Card 2/3

X

The extraction of uranium (VI) ...

<sup>31889</sup>  
S/186/61/003/005/007/022  
E071/E485

nitric acid solutions as well as from solutions containing salting-out agents was pointed out. Changes in the extracting properties of TOA nitrate in various diluents is related to the polar properties of the diluents used and interactions in the system extracting agents-diluent. There are 4 figures, 3 tables and 20 references: 12 Soviet-bloc, 2 Russian translations of non-Soviet publications and 6 non-Soviet-bloc. The four most recent references to English language publications read as follows:  
Ref.4: W.E.Keder, J.C.Sheppard, A.S.Wilson, J. Inorg. Nucl. Chem., 12, 314, 327 (1960); Ref.6: D.J.Carswell, J.J.Lawrence, J. Inorg. Nucl. Chem., v.111, 69 (1959); Ref.17: J.K.Foreman, J.R.McGowen, T.D.Swith, J.Chem. Soc., 738 (1959); Ref.18: A.G.Gobbe, A.G.Maddock, J. Inorg. Nucl. Chem., v.7, 2, 34 (1958).

SUBMITTED: October 27, 1960

Card 3/3

X

VDOVENKO, V.M.; DEM'YANOVA, T.A.; KUZINA, M.G.; LIPOVSKIY, A.A.

Hydrogen bonding in alkyl ammonium salts. Part 1: Infrared spectra and structure of trioctyl ammonium nitrate.

Radiokhimiia 6 no. 1:49-55 '64.

(MIRA 17:6)

LIFOVSKIY, A.A.; KUZINA, M.G.

Infrared spectra and structure of complex compounds of  
uranyl nitrate with cesium and pyridinium nitrates.  
Radiokhimiia 5 no. 6:668-674 '62. (MIRA 17:7)



VDOVENKO, V.M. (Leningrad); LIFOVICHY, A.A. (Leningrad); KUZINA, M.G.  
(Leningrad); DEM'YANOVA, T.A. (Leningrad); NIKITINA, S.A.  
(Leningrad)

Hydrogen bonds in alkyl ammonium salts. Ukr. fiz. zhur. 9  
no.4:453-457 Ap '64. (MIRA 17:8)

LIPOVSKIY, A.A.; KUZINA, M.G.

Infrared absorption spectra and structure of sulfate, bisulfate,  
and uranyl trisulfate of tridecyl ammonium. Zhur. neorg. khim.  
10 no.6:1360-1368 Je '65. (MIRA 18:6)

KUZINA, N. I.

PA 21T99

USSR/ Medicine - Saccharides  
Medicine - Proteins

Jun/Aug 1947

"The Specific Polysaccharide Complexes o Macroorganisms," A. M. Kuzin, I. S. Buyanovskaya, A. M. Rykaleva, N. I. Kuzina, Laboratory of Immunology, Institute of Biological Prophylaxy of Infections, Moscow, 10 pp

"Biokhimiya" Vol XXI, No 4

KUZINA, N.I.

CA

11G

Specific polysaccharide complexes in malignant tissues.  
A. M. Kuzin and N. I. Kuzina. *Biokhimiya* 14, 432-5 (1949); cf. C.A. 32, 6322; 42, 1345c.—The polysaccharides isolated from cancerous human tissues with  $\text{CCl}_4\text{-CO}_2\text{H}$  are almost identical chemically to those from healthy people. The cancerous tissue polysaccharides, however, do not possess the specific serological reactions of the particular blood group. The polysaccharide fractions from healthy and cancerous tissues obtained by decomposition of the complexes with phenol, according to Morgan and King (C.A. 38, 2385) also differ serologically. The polysaccharide fraction from cancerous tissue is incapable of checking the hemagglutination reaction, whereas the normal tissue polysaccharide can do so in a diln. of 1:250,000. The serological difference can also be proved by immunizing rabbits and testing the serum for complement fixation; the reaction is pos. for the polysaccharide from normal tissue, and neg. in the case of malignant tissue.  
H. Priestley